IF you were to invest in 5 companies who had IPOS in 2019 would you want to know the risk of those companies? Calculate the volatility between 5 companies who IPOs occurred in 2019. Also do a brief risk analysis of each company in the portfolio. We will assume the follwing companies were invested in and that the portfolio is equally weighted

In [6]:
```
import numpy as np
import pandas as pd
from pandas_datareader import data as web
import matplotlib.pyplot as plt
```

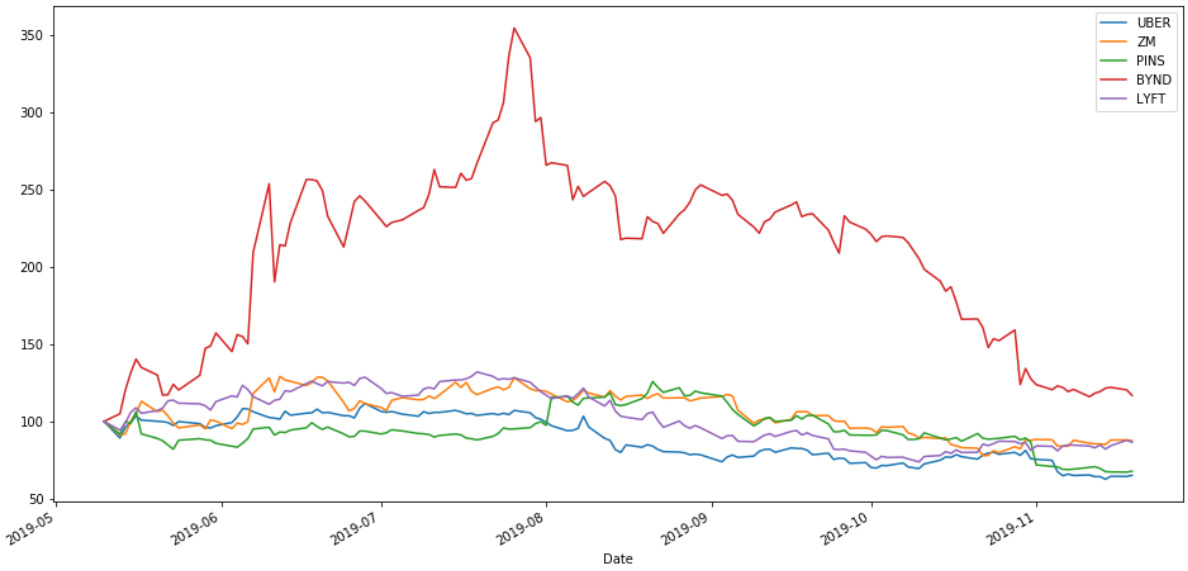
Uber, Beyond Meat, LYFT, Pinterst, ZOOM

In [12]:
```
tickers = ["UBER", "ZM", "PINS", "BYND", "LYFT"]
data_frame = pd.DataFrame()
for t in tickers:
    data_frame[t] = web.DataReader(t, data_source = "yahoo", start = "20
19-1-1")["Adj Close"]
```

In [13]:
```
data_frame.info()
```

```
<class 'pandas.core.frame.DataFrame'>
DatetimeIndex: 135 entries, 2019-05-10 to 2019-11-19
Data columns (total 5 columns):
UBER    135 non-null float64
ZM      135 non-null float64
PINS    135 non-null float64
BYND    135 non-null float64
LYFT    135 non-null float64
dtypes: float64(5)
memory usage: 6.3 KB
```

In [14]:
```
#lets see the behavior of the stocks so far by normalizing the data
(data_frame/data_frame.iloc[0] * 100).plot(figsize = (16,8))
plt.show()
```



calculate the returns for the securties in the portfolio

In [15]:
```
simple_returns = (data_frame/data_frame.shift(1)) - 1
```

In [17]:
```
simple_returns.info()
```

```
<class 'pandas.core.frame.DataFrame'>
DatetimeIndex: 135 entries, 2019-05-10 to 2019-11-19
Data columns (total 5 columns):
UBER    134 non-null float64
ZM      134 non-null float64
PINS    134 non-null float64
BYND    134 non-null float64
LYFT    134 non-null float64
dtypes: float64(5)
memory usage: 6.3 KB
```

In [18]:
```
simple_returns.tail()
```

Out[18]:

Date	UBER	ZM	PINS	BYND	LYFT
2019-11-13	0.000374	0.000147	-0.015595	0.009518	0.022915
2019-11-14	-0.026956	-0.003970	-0.029703	0.017908	-0.031871
2019-11-15	0.030781	0.033511	-0.003061	0.004725	0.026718
2019-11-18	-0.001493	0.001000	-0.002047	-0.013488	0.042286
2019-11-19	0.011215	-0.006279	0.009231	-0.029729	-0.015827

Calculate the Risk for each security in the portfolio

In [21]:
```
uber_risk = simple_returns["UBER"].std() * 250 ** 0.5
uber_risk
```

Out[21]: 0.3511801373150022

In [24]:
```
zoom_risk = simple_returns["ZM"].std() * 250 ** 0.5
zoom_risk
```

Out[24]: 0.6020521671429016

In [26]:
```
pinterest_Risk = simple_returns["PINS"].std() * 250 ** 0.5
pinterest_Risk
```

Out[26]: 0.597865906454312

In [28]:
```
beyond_risk = simple_returns["BYND"].std() * 250 ** 0.5
beyond_risk
```

Out[28]: 1.0874535349166212

In [30]:
```
lyft_risk = simple_returns["LYFT"].std() * 250 ** 0.5
lyft_risk
```

Out[30]: 0.4610829339036478

In [ ]:
```

```

WE will calculate the overall risk of the portfolio assuming the portfoliio is equally weighted

In [34]:
```
weights = np.array([0.20,0.20,0.20,0.20,0.20])
portfolio_variance = np.dot(weights.T, np.dot(simple_returns.cov() * 250
, weights))
portfolio_variance
```

Out[34]: 0.17987153442886394

In [35]:
```
portfolio_volatility = np.dot(weights.T, np.dot(simple_returns.cov() * 2
50, weights)) ** 0.5
portfolio_volatility
```

Out[35]: 0.42411264356166506

In [45]:
```
vol_percentage = (str(round(portfolio_volatility,2) * 100) + "%")
```

In [46]:
```
print(f"the overll volitility of the portfolio is {vol_percentage}")
```

```
the overll volitility of the portfolio is 42.0%
```

In [ ]: